

REMARKS

This Amendment is in response to the Office Action dated December 23, 2009. In the Office Action, claims 1, 3-16 and 18-40 were rejected. With this Amendment, claims 1, 23, 30 and 40 are amended. It is respectfully submitted that all pending claims 1, 3-16 and 18-40 are in condition for allowance.

**§ 101 Claim Rejections**

Claims 1-40 were rejected under 35 U.S.C. 101. Accordingly, claims 1, 23 and 30 are amended. It is respectfully believed that this rejection can be withdrawn.

**§ 103 Claim Rejections**

In making a case for obviousness, the Office has the burden of substantiating evidence to show the requisite motivation exists for the skilled artisan to combine and/or modify the cited references to arrive at the claimed invention. In assessing whether a case has been made, the obviousness rejection must be evaluated in view of the factual inquiries outlined in *Graham v. John Deere*, 148 USPQ 149 (1966):

- (A) Ascertain the scope and content of the prior art;
- (B) Ascertain the differences between the claimed invention and the prior art; and
- (C) Resolve the level of ordinary skill in the pertinent art.

It is respectfully submitted that differences between the claimed invention and the cited references still exist and therefore there are no clearly articulated reasons to support a legal conclusion of obviousness.

I. Claims 1, 3-16, 23-29 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menezes et al. (US 2003/0023422) in view of Brown et al. (US 5,477,451). Of these claims, claims 1 and 23 are independent and are amended.

The combination of cited references fail to describe “using a processor to calculate a score for each of the set of transfer mappings which cover at least a select node of the input semantic structure using a statistical model, wherein calculating the score for each transfer mapping comprises combining scores of the highest scoring mappings for each child node of the

select node not covered by the transfer mapping with the score of the transfer mapping” as claimed in claim 1 and “a decoding component configured to score each of the set of transfer mappings that corresponds with a select portion of the input semantic representation and to select which of the transfer mappings that correspond with the select portion of the input semantic representation has a highest score, wherein scoring each of the set of transfer mappings includes combining scores of the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping” as claimed in claim 23.

The Examiner points to Brown as describing the calculating of a score for each of the set of transfer mappings and describing the selection of the highest scoring transfer mapping that describes the select node. In col. 10, lines 28-40 and FIG. 7, an input source text 707 is converted into an intermediate source structure. A set of one or more hypothesized target structures are generated by making use of a language model based on probabilities or scores to target structures and a translation model which assigns probabilities or scores to source structures. The highest scoring hypothesis is selected and converted into text. However, to begin with, Brown fails to describe that each of the set of hypothesis structures cover at least one node or portions of the intermediate source structure as is claimed in claims 1 and 23. In Brown, the hypothesized target structures are said to be generated from a language model and a translation model not provided transfer mappings that includes at least one node of the source structure. Brown also fails to describe that when scoring each hypothesis, the score is a combined score of both the highest scoring for each child node of a select node and the score of the transfer mapping for the select node. Brown merely describes that scoring is assigned and the highest scoring hypothesized structure is selected. Brown does not discuss how the highest score is determined or that it is determined by searching through the source structure to determine the highest score.

Later in the rejection, the Examiner points to FIG. 10 steps 1003 and 1008 of Su et al (US 5,418,717) to describe the calculation of a score for each of a set of transfer mappings that describe a selected node and the notion of combining the highest scoring root transfer mappings that described each child node with a score of the root transfer mapping of the select node. Su et al, however, fails to describe the scoring of transfer mappings at all. Instead, it discusses the

lexical score and highest lexical score of a source material or input. The input is parsed and truncated based on the retrieval of semantic and syntactic scores based on the lexical scores. If transfer mapping scoring is not described, then, as such, the way a transfer mapping is scored using uncovered child nodes is not described either.

It is respectfully believed that claims 1 and 23 are in condition for allowance. In addition, claims 3-16, 24-29 and 39 are also in condition for allowance at least based on their dependence on allowable claims 1 and 23. However, claim 3-16, 24-29 and 39 are also in condition for allowance for additional reasons. In particular, Menezes et al. fails to describe providing transfer mappings for the select node as well as any child nodes of the select nodes as claimed in claim 39. The Examiner points to FIG. 5B to show the features of claim 39. However, FIG. 5B illustrates the alignment of a logical form diagramming a Spanish sentence to a logical form of the same sentence in English. Menezes fails to describe the use of multiple transfer mappings for each parent node and child nodes.

II. Claims 18-22, 30-38 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over MENEZES in view of BROWN as applied to claim 16 above, and further in view of SU et al. (US Patent 5,418,717). Of these claims, claim 30 is independent and is amended.

Claims 18-22 are in condition for allowance at least based on their dependence on allowable base claim 1 and 16. In addition, claims 18-22 are in condition for allowance for additional reasons. In particular, the combination of cited references fail to describe “recursively calculating a score for each level of nested subtrees, wherein calculating a score for a subtree comprises recursively scoring the subtrees of the subtree, calculating a score for the root transfer mapping of the subtree, and combining the scores for the subtrees of the subtree with the score for the root transfer mapping of the subtree; calculating a score for the root transfer mapping; and combining the score for each subtree with the score for the root transfer mapping” as claimed in claim 18. As discussed above, the Examiner points to FIG. 10 steps 1001 to 1008 of Su et al (US 5,418,717) to describe the calculation of a score for each of a set of transfer mappings that describe a selected node and the notion of combining the highest scoring root transfer mappings that described each child node with a score of the root transfer mapping of the

select node. Su et al. fails to describe the scoring of transfer mappings at all. Instead, it discusses the lexical score and highest lexical score of a source material or input. The input is parsed and truncated based on the retrieval of semantic and syntactic scores based on the lexical scores. If transfer mapping scoring is not described, then, as such, the way a transfer mapping is scored using uncovered child nodes is not described either.

It is respectfully submitted that the combination of cited references also fail to describe “using the processor to score each of the set of transfer mappings which cover at least a select node of the input semantic structure with a target language model that provides a probability of sequences of nodes appearing in an output semantic structure having a plurality of nodes that relate to an output word string, wherein scoring each transfer mapping comprises combining the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping; and using the processor to select the highest scoring transfer mappings of the set of transfer mappings which cover at least the select node” as claimed in claim 30.

As previously discussed, Brown fails to describe that each of the set of hypothesis structures cover at least one node or portions of the intermediate source structure as is claimed in claim 30. In Brown, the hypothesized target structures are said to be generated from a language model and a translation model not provided transfer mappings that includes at least one node of the source structure. Brown also fails to describe that when scoring each hypothesis, the score is a combined score of both the highest scoring for each child node of a select node and the score of the transfer mapping for the select node. Brown merely describes that scoring is assigned and the highest scoring hypothesized structure is selected. Brown does not discuss how the highest score is determined or that it is determined by searching through the source structure to determine the highest score.

As also previously discussed, Su et al, fails to describe the scoring of transfer mappings at all. Instead, it discusses the lexical score and highest lexical score of a source material or input. The input is parsed and truncated based on the retrieval of semantic and syntactic scores based on the lexical scores. If transfer mapping scoring is not described, then the way a transfer mapping is scored using uncovered child nodes is not described either.

Claim 30 is in condition for allowance. In addition, claims 31-38 and 40 are also in condition for allowance at least based on their dependence on allowable claim 30. However, claims 31-38 and 40 are in condition for allowance for additional reasons. As described, Su et al. fails to how transfer mappings are scored using uncovered child nodes. As such, Su et al. also fails to describe how to calculate other transfer mappings to score a child node.

### **Conclusion**

It is respectfully submitted that all pending claims 1, 3-16 and 18-40 are in condition for allowance. Favorable action is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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